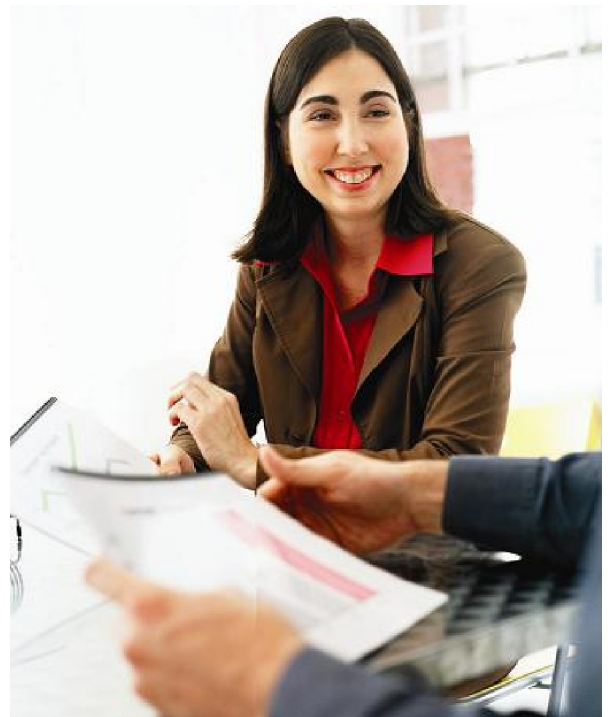


# HEALTH MONITOR™ Management Report

Prepared For:  
**University of Alaska**



provided to members of

**PREMERA** | 

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# Introduction

## The Health Monitor™ Management Report

This Management Report is a compilation of your population's data from the Health Monitor™ Questionnaire. This report summarizes the health risks, health behaviors, medical and self-care patterns, and preferences of your population. The data focuses on modifiable health risks that will enable you to plan more cost-effective programming in order to better manage the health of your population. This report will also provide you important benchmark data from which to measure population health management results.

Modifiable health risks cause 25% or more of your members' health care costs.<sup>1</sup> Interventions that target these health risks can reduce health care costs. This Management Report provides information on the severity and prevalence of these modifiable risks.

This report also describes your population's demographics, summarizes health risks of the population, quantifies your population's readiness for change, and provides economic data that can help in the final decision-making process for your population health risk management (PHRM) program. By understanding the risks present in your employee population, you can plan interventions that target the problem areas. Targeted interventions, which focus on high-risk individuals, help them make needed lifestyle changes to decrease their risks. Lower risk status means lower health care costs and absenteeism with improved productivity, health, and job satisfaction.

## Methodology

The University of Alaska Health Monitor™ Management Report is a summary of your population's Health Monitor™ questionnaires, biometric data, and any clinical data that may have been provided. The questionnaire collects information on health status and asks participants about their health behaviors. The questionnaire focuses on behavior-related risks that individuals can change to improve their health, such as proper diet, physical activity, stress reduction, tobacco cessation, alcohol moderation, preventive screenings, and more.

Each participant's Health Monitor™ data was processed to produce an individualized Personal Health Report, which is designed to increase personal awareness and encourage individuals to make health behavior changes. Health information is privileged, and during this process all participant information remains confidential. Results from the Health Monitor™ Questionnaire are processed and stored on a secure system. Individual Personal Health Reports can be viewed immediately upon survey completion for online users, or are sealed and returned to the participant in a confidential envelope for paper users.

# Executive Summary

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On 9/15/2007, the Health Monitor™ Questionnaire was made available to 6435 University of Alaska members. 2752 participants either returned a completed paper-based questionnaire or completed the Internet-based questionnaire and received an individual Personal Health Report. The purpose of the questionnaire is to assess the overall health of the population and identify health risks of individuals. Aggregate results of Health Monitor™ for University of Alaska are presented in this Management Report.

## Summary of Findings

- 50% of the University of Alaska participants received an Overall Wellness Score (OWS) above 80, indicating a higher level of health and well-being. The average OWS of the University of Alaska population was 79.0534.
- 50% of the participants have a score below 80. These 1364 individuals have an elevated risk for one or more risk factors and a higher risk of developing a chronic illness.
- The 3 most prevalent single health risk factors for the University of Alaska population are:
  1. Nutrition
  2. Physical Inactivity
  3. Stress
- 621 of University of Alaska participants had 3 or more cardiovascular disease (CVD) risk factors. Individuals with multiple CVD risks contribute over three times more to health care expenditures than persons who are risk free.<sup>1</sup> An intervention program targeting CVD risk factors will help avoid much of these costs.

# Executive Summary

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## Summary of Findings Continued

- Health care utilization and absenteeism increase as the number of risk factors increases. 2183 University of Alaska participants have 3 or more risk factors and reported an average of 3.88 missed days of work and 4.28 visits to a physician in the last 12 months.
- Individuals have preferences for the way in which they receive health information. These preferences are driven by their learning styles, reading levels, access to technology, etc. The top 4 health information modalities for University of Alaska were:

Internet-based information - 65.9%  
Printed material - 51.9%  
Newsletter - 50.1%  
Self-help guide books - 34.2%

- Based on the health risks present in the University of Alaska participant group of 2752 individuals, the questionnaire identified total excess modifiable health care spending of \$2,645,376. Using the recommendations in this report will provide you with the opportunity to reduce these costs.

The Intervention Opportunity Index (IOI) is an index of potential financial impact for investment in intervention targets. According to the IOI, the top three intervention targets for University of Alaska are:

1. Stress
2. Depression
3. Weight

# Population Overview

## Demographics

A group's demographic composition is strongly associated with specific patterns of health risks and behaviors. Age, ethnicity, and gender are key indicators of potential health risks and are important guides for appropriate preventive health behavior interventions. Education level is also a major determinant in predicting health behaviors and suitable interventions. Addressing these differences in demographics and risk behaviors will maximize your wellness program results.

Many risk factors that lead to chronic disease are more prevalent in certain demographic groups. For example:

- About 32 percent of cardiovascular disease deaths occur in people before age 75, which is close to the average life expectancy.<sup>1</sup>
- African-Americans tend to have more severe hypertension than Caucasians.<sup>2</sup>
- More women than men die of stroke.<sup>3</sup>
- Physical inactivity is more prevalent among Hispanics as compared to African-Americans and American Caucasians.<sup>4</sup>

The following demographic table shows the breakdown of the University of Alaska population who completed the questionnaire.

Demographics	Current Year: 9/15/2007- 12/15/2007	Database Average
Eligible Participants	6435.0	NA
Actual Participants	2752.0	99829.0
Participation Rate	42.8%	NA
Male Participants	42.4%	42.9%
Female Participants	57.6%	57.1%
Average Age of Participants	44.5	43.1
African American Participants	1.9%	5.8%
Asian Participants	5.5%	2.7%
Caucasian/White Participants	83.5%	85.0%
Hispanic Participants	1.7%	3.4%
American Indian Participants	1.9%	0.6%
Multi-Ethnic Participants	2.2%	0.9%
Other Participants	2.1%	0.9%
Ethnicity Unknown	0.5%	0.2%
Participants who are High School Graduates or Less	5.9%	16.6%
Participants with Some College or Vocational Ed.	23.5%	31.2%
Participants who are College Graduates	31.9%	34.4%
Participants with Post Graduate/Professional Degree	37.9%	17.1%

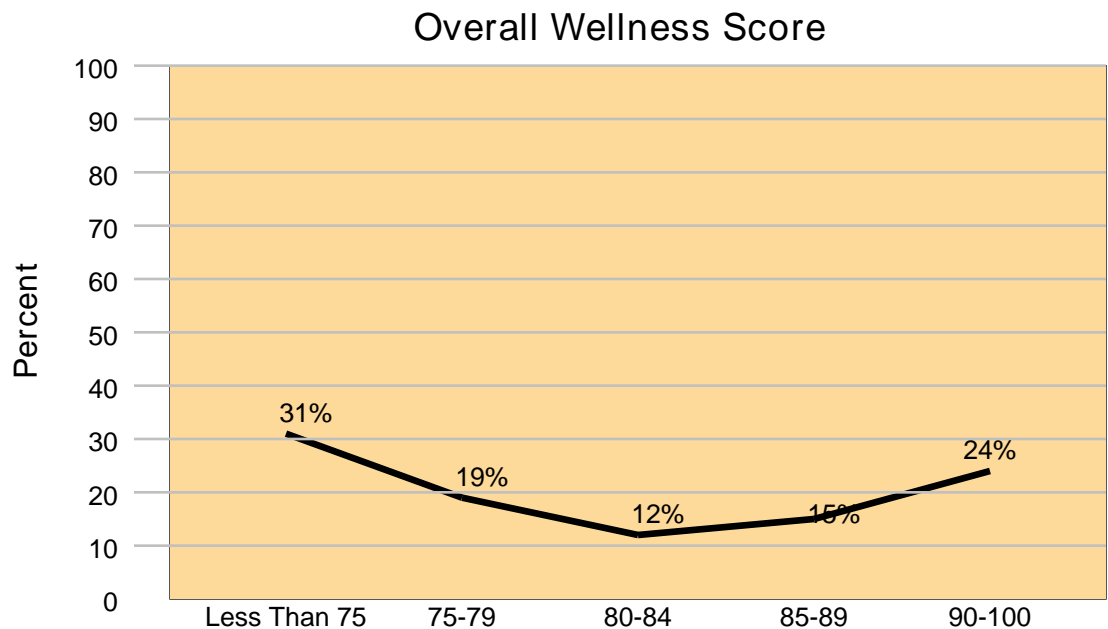
Please note: Because some participants choose not to answer certain questions, a table or graph's percentages may not equal 100%. Each graph percentage is based on the number of people who answered that particular question divided by the total number of people who returned a questionnaire.

# Population Overview

## Overall Wellness Score

An Overall Wellness Score (OWS) is calculated for each individual completing the questionnaire. The OWS, which ranges from 30 to 100, is calculated from a composite of risk factors and health behaviors. A person with a score of 80 or below is considered to be at elevated risk for developing chronic diseases that can greatly affect health care spending and quality of life. The OWS is based strictly on modifiable lifestyle habits, such as physical activity, nutrition, stress management, alcohol consumption, and safety practices. Participants start with 100 points and lose points for poor lifestyle habits and negative health behaviors.

This report is organized to help you improve the health and OWS of your population. Throughout the report, each risk factor will be addressed in greater detail with ideas for recommended interventions. The following graph shows the distribution of scores for the University of Alaska population. As the graph indicates, 50%, or 1364 participants, have a score indicating they are at elevated risk for one or more risk factors.



# Population Overview

## Medical History

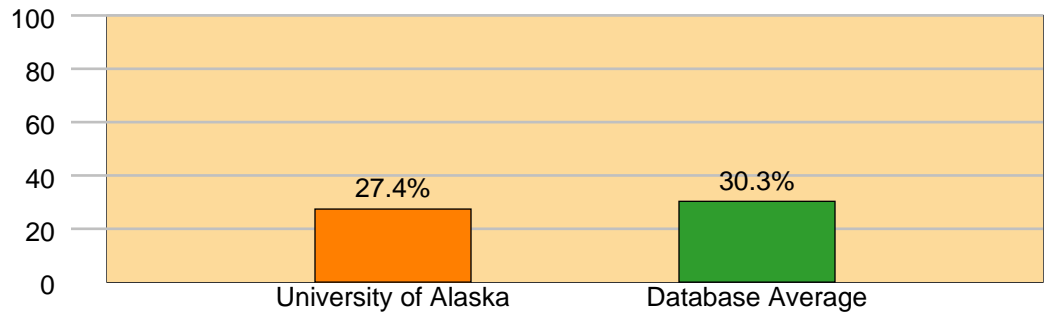
Disease care expenditures in 2000 averaged approximately \$3,759 for every man, woman, and child, with over 2.5 billion workdays lost or impaired per year for individuals age 25 to 54.<sup>1,2,3</sup> 1495 participants, representing 54.3% of the University of Alaska surveyed population, reported one or more diagnosed medical conditions. 35.5% of the participants are currently receiving treatment for their condition and 26.9% reported that they will require the use of the health care system in the next year. The following table lists the top 10 reported diseases or conditions reported by University of Alaska participants.

Disease and Condition	Percent of Participants Diagnosed	Database Average
Allergies	21.8%	17.2%
High Cholesterol	14.6%	11.6%
Hypertension	13.1%	10.9%
Menopause	11.6%	5.6%
Depression	10.1%	9.9%
Asthma	8.3%	6.8%
Arthritis	8.2%	6.0%
Migraines	7.3%	5.9%
Sciatica or pinched back nerve	6.2%	3.1%
Diabetes Type 2	3.6%	2.8%

## Current Medication Use

Prescription drugs have surpassed hospital and physician services and have become the fastest growing segment of our national health care expenditures.<sup>1</sup> 27.4% of University of Alaska's participants report that they currently are taking medications that may or may not be directly related to a reported diagnosed medical condition.

Percent of Participants Taking Medication



# Population Overview

## Preventive Screenings

Early detection of disease through preventive screenings can reduce disability, minimize medical costs, and save lives. Health Monitor™ is an important first step toward preventing diseases that can be caused by lifestyle and behaviors. Another key step is to encourage your population to get preventive medical screenings recommended for their age and gender. The following chart presents recommendations for preventive screenings for men and women, as well as the percentage of University of Alaska participants who are currently in compliance with the recommendations.

Preventive Screening Guidelines					
Health Test	Ages 20-29	Ages 30-39	Ages 40-49	Ages 50 +	Population Compliance (1)
Physical Exam	2-3 years	2-3 years	2-3 years	1-2 years	85.7%
Blood Pressure	1-2 years	1-2 years	1-2 years	1-2 years	94.1%
Vision	3-5 years	3-5 years	3-5 years	3-5 years	92.0%
Pap Test (2)	Annually	Annually	Annually	Annually	76.5%
Mammogram			1-2 years	1-2 years	85.6%
Breast Self Exam	Monthly	Monthly	Monthly	Monthly	60.9%
Professional Breast Exam			Annually	Annually	76.3%
Testicular Self Exam	Monthly	Monthly	Monthly	Monthly	41.5%
Digital Rectal Exam (3)				Annually	41.5%
Stool Blood Test				Annually	32.1%
Cholesterol Screening (4)	3-5 years	3-5 years	3-5 years	3-5 years	82.8%
Glaucoma Screening				2-3 years	85.2%
Dental Checkup	Annually	Annually	Annually	Annually	79.7%
Diabetes (5)			3 years	3 years	68.7%
Flu Shot			3 years - starting at age 45	Annually after age 65	65.6%
Colonoscopy (6,7,8)				Every 10 years	58.3%

It is important for your population to be compliant with all preventive screening recommendations. Increasing awareness of the importance of these screening recommendations will reduce complications related to chronic disease and prevent excess medical expenditures. All participants received information on the preventive medical screenings specific to their age and gender in their Personal Health Reports.

1 - Population compliance percentages are based on the recommendation and not the total population.

2 - Can be done every 3 years only after 3 consecutive normal paps.

3 - Men with high family history should have this test performed annually starting at age 45.

4 - Individuals at high risk for high cholesterol should have their cholesterol tested annually.

5 - Individuals at high-risk for diabetes due to family history or other personal risk factors, should be tested for diabetes annually. Screening for diabetes should be performed every 3 years for individuals over the age of 45.

6 - Discuss with provider if high risk for colon cancer.

7 - Note that the HRA can only measure compliance at a frequency of every 5 years.

8 - Some physicians instead suggest a sigmoidoscopy every 5 years starting at age 50; however, digital rectal exam and colonoscopy are used more frequently.

# Economic Summary

## Excess Health Care Costs

A study by the independent Health Enhancement Research Organization (HERO) evaluated the association between modifiable risk factors and medical expenditures. The results of this study showed that a significantly higher level of medical expenses were associated with the risky behaviors health behaviors evaluated. Self-reported depression, high stress levels, and high blood glucose levels were risk factors associated with the greatest medical costs. Other risk factors that contributed to high expenditures were body weight, tobacco use, high blood pressure, and physical inactivity.<sup>1,2</sup>

The following table lists the health risks present in the University of Alaska population based on the answers from the questionnaire and provides a detailed estimate of excess health care costs<sup>1,2</sup> that may be avoided if these risk factors are reduced:

Health Risk*	Participants with Risk Factor**	Excess Health Care Spending for Each Risk Factor	Total Excess Health Care Spending
Depression	667	\$1,187.00	\$791,729
Stress	1085	\$732.20	\$794,437
Glucose	11	\$586.81	\$6,455
Overweight	565	\$352.28	\$199,038
Tobacco Use	14	\$227.81	\$3,189
High Blood Pressure	0	\$198.86	\$0
Cardiovascular Exercise	28	\$172.71	\$4,836
High Cholesterol	8	(\$13.59)	(\$109)
Total Modifiable Costs (1996 Dollars)			\$1,799,576
Inflation Factor (based on Medical Care CPI)			1.47
Total Modifiable Costs (2006 Dollars)			\$2,645,376

\* Many participants have multiple risk factors. However, the numbers listed above depict the one risk factor that has the greatest health care expenditure per participant.

\*\* Guidelines used in the HERO study are different than the current national guidelines. All references to excess healthcare costs in this report are calculated using the following specifications in order to match the HERO "at-risk" definitions as closely as possible: Depression: at least one severe symptom of depression or at least 2 moderate symptoms of depression, Stress: at least 1 severe symptom of stress or at least 2 moderate symptoms of stress, Glucose: > 115 mg/liter, Overweight: BMI >= 25, Tobacco Use: Current use of cigarettes, cigars, pipes, or smokeless tobacco, High Blood Pressure: >= 160/100 mg Hg, Cardiovascular Exercise: 0 days of exercise per week, High Cholesterol: > 240 mg/dL.

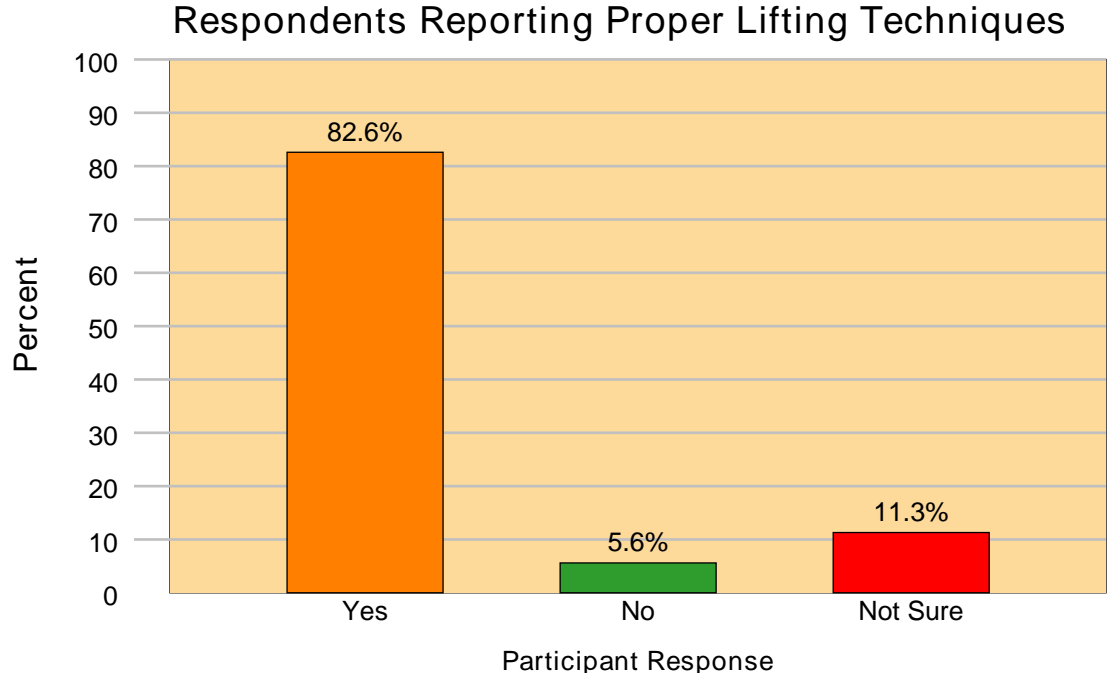
# Risk Factor Analysis

Often, people are unaware of their health status and their risks for chronic illness. Improving individual health awareness to the University of Alaska population will help improve overall health status and decrease health care costs. The following pages summarize risk factors associated with chronic disease and illness and identify areas of improvement for participants in your organization. This information is important when deciding on targeted interventions unique to the University of Alaska population. Increasing awareness of a population's health risks is the first step toward making a positive difference.

## Occupational Health and Safety

### Back Pain

Workplace injury and illness are caused by exposure to ergonomic risk factors while on the job. One of the most prevalent occupational injuries is to the back.<sup>1</sup> The American Journal of Public Health estimates that 4.75 million workers suffer from back disorders related to repetitive motion on the job, causing an average of 101.8 million lost workdays.<sup>2</sup> To prevent work-related musculoskeletal disorders in your population, it is important to teach and encourage the use of proper lifting techniques and proper ergonomics. 463 participants, or 16.8% of University of Alaska's surveyed population, reported being unsure of, or not using, proper lifting techniques.

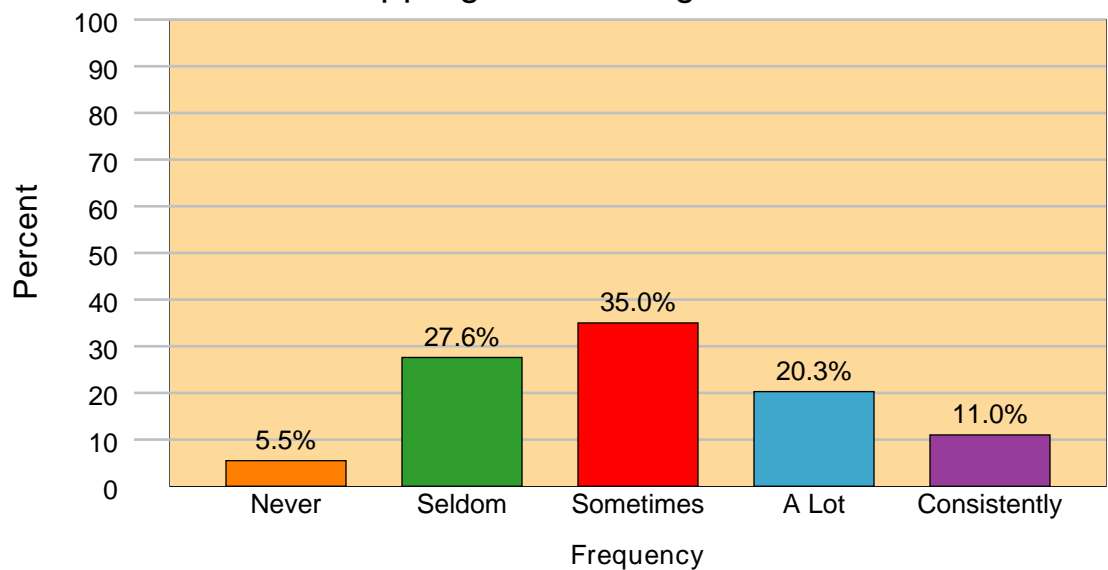


# Risk Factor Analysis

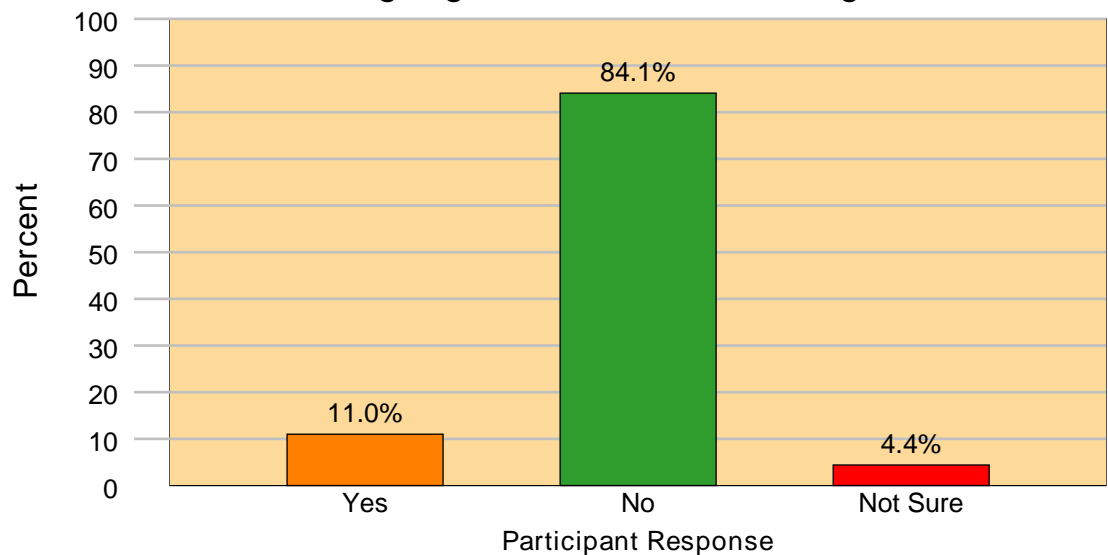
## Carpal Tunnel Syndrome

15.4% of the University of Alaska participants reported that they either have or are not sure if they have persistent numbness or tingling in their hands or fingers. This may be the first sign of carpal tunnel syndrome (CTS). Ergonomic and biochemical literature supports the view that certain occupational and ergonomic factors, such as repetitive movements of the wrist and hand, especially forceful pinching and wrist flexing and vibration, produce increased pressure on the nerve and may cause CTS.<sup>1</sup> The Bureau of Labor Statistics reports that the median lost work time for CTS is more than 30 days.<sup>1</sup> Attention to workspace ergonomics and the importance of stretching and relaxing throughout the day can prevent many cases of CTS.<sup>2</sup>

### Frequency of Activities That Involve Repeated Gripping or Pinching Movements



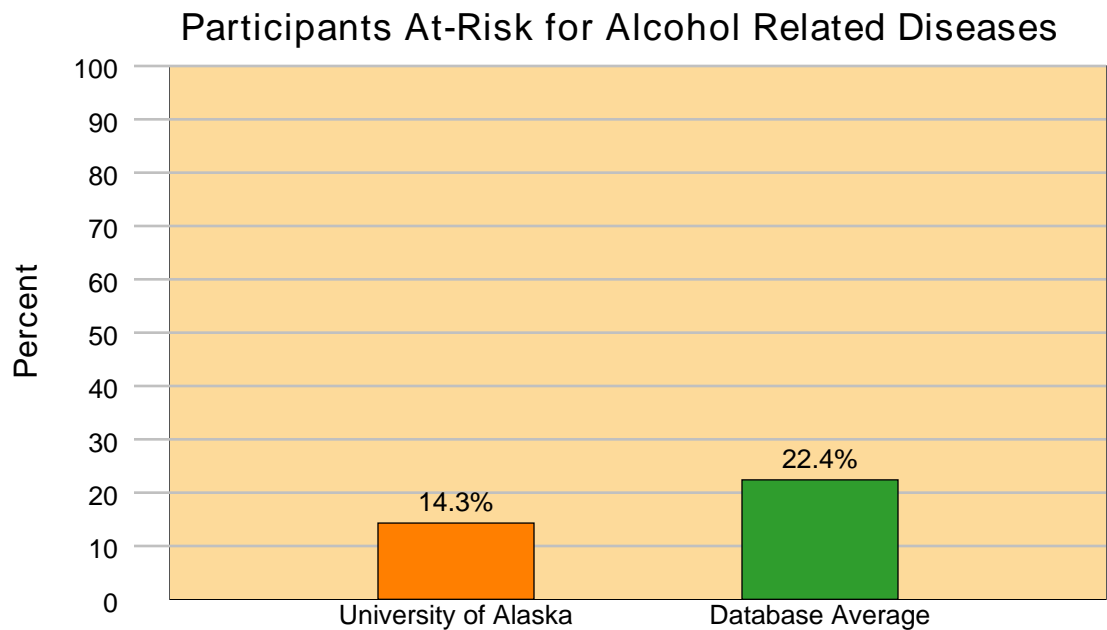
### Respondents Reporting Persistent Numbness or Tingling in their Hands or Fingers



# Risk Factor Analysis

## Alcohol

14.3% of the University of Alaska participants reported engaging in high-risk alcohol use behaviors. High-risk behaviors are defined as having more than 14 drinks per week for men, more than 7 drinks per week for women, or more than 5 drinks in a single setting (binge drinking). According to the National Institute on Alcohol Abuse and Alcoholism, excessive drinking by employees costs employers worldwide billions of dollars each year in absenteeism, lost production, and insurance costs.<sup>1,2</sup> In 2001, alcohol abuse resulted in over \$9.7 billion in health care expenditures.<sup>3</sup>



Alcohol is a risk factor for:

- cirrhosis of the liver;
- gastric ulcers;
- colorectal cancer; and
- hepatitis.

Recommended Interventions:

1. Discuss services provided by your Employee Assistance Program.
2. Establish and enforce alcohol policies within your workplace.
3. Help employees learn about alcohol alternatives in social situations.
4. Take advantage of National Alcohol Awareness Month (April).
5. Support behavior change through targeted intervention to highest risk individuals.

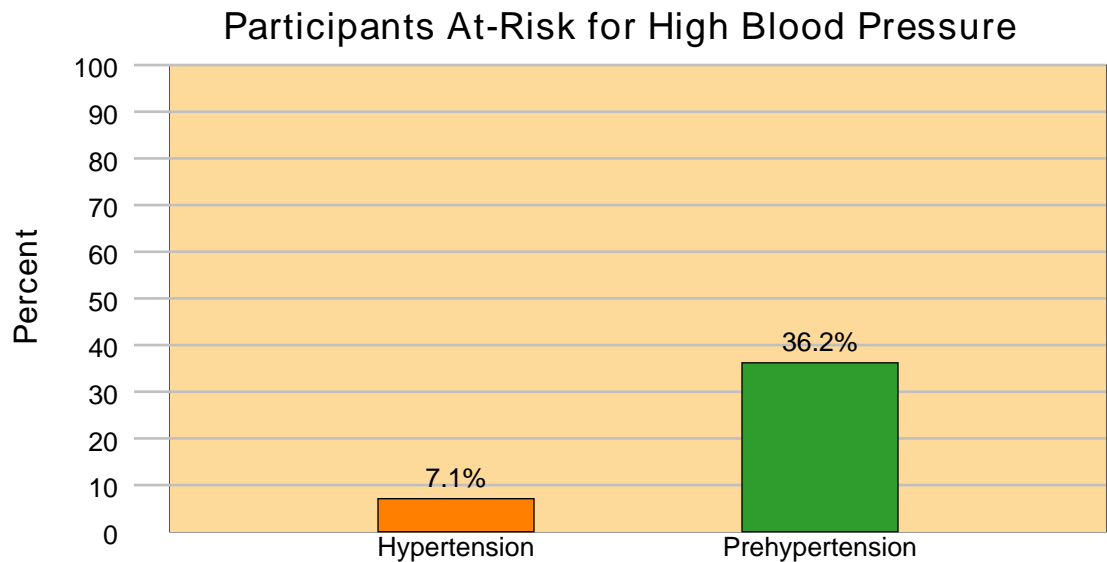
Resources:

National Institute on Alcohol Abuse and Alcoholism  
National Center on Addiction and Substance Abuse  
Alcoholics Anonymous  
National Clearinghouse for Alcohol and Drug Information

# Risk Factor Analysis

## Blood Pressure

196 participants, or 7.1% of University of Alaska's surveyed population, have been identified as having high blood pressure (greater 140/90 mmHg). 996 participants have been identified as being at risk for future problems with high blood pressure, or having prehypertension (within the range of 120/80 mmHg and 139/89 mmHg). High blood pressure is one of several risk factors associated with cardiovascular disease (CVD), which is the cause of every 1 in 2.8 deaths.<sup>1</sup> CVD claims more lives annually than all cancers combined and costs over \$116.4 billion in lost productivity due to morbidity and mortality.<sup>2,3</sup>



Hypertension is a risk factor for:

- Diabetes
- Stroke
- Heart disease

Prehypertension risk factors include:

- Obesity
- Sedentary lifestyle
- High-sodium diet
- Alcoholism

Recommended Interventions:

1. Offer physical activity programs at the workplace.
2. Set up a physical activity incentive program for your participants.
3. Provide a resource list of stress relief programs offered in the community.
4. Support behavior change through targeted intervention to highest risk individuals.
5. Encourage regular physician visits for physical exams and proper screenings.

Resources:

American Heart Association  
American Stroke Association  
Centers for Disease Control and Prevention (CDC)

# Risk Factor Analysis

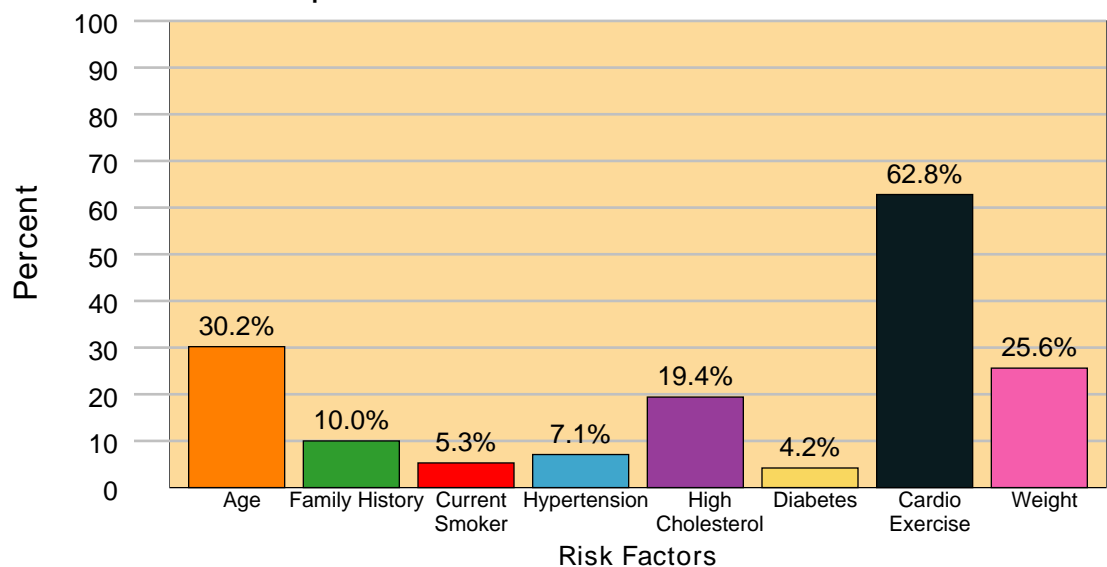
## Cardiovascular Disease

621 participants, representing 22.6% of the University of Alaska surveyed population, are at elevated risk for cardiovascular disease (CVD) due to the presence of three or more of the CVD risk factors listed below. Heart disease and stroke, which are forms of CVD, are among the nation's leading killers for both men and women and among some racial and ethnic groups.<sup>1</sup> In 2004, 871,517 Americans died of CVD, accounting for over 36 percent of all deaths.<sup>2</sup>

### CVD Risk Factors:

- Age: men over 45 years or women over 55 years
- Family history: heart attack or sudden death before 55 years of age in father or other first-degree male relative, or before 65 years of age in a mother or other first-degree female relative
- Tobacco use: current smoker
- High blood pressure: 140/90 mmHg or above
- High cholesterol: total cholesterol 200 mg/dL or above
- Diabetes: diagnosed with Type 1 or Type 2 diabetes
- Cardiovascular exercise: less than 4 times per week
- Weight: BMI  $\geq$  30

Participants At-Risk for Cardiovascular Disease

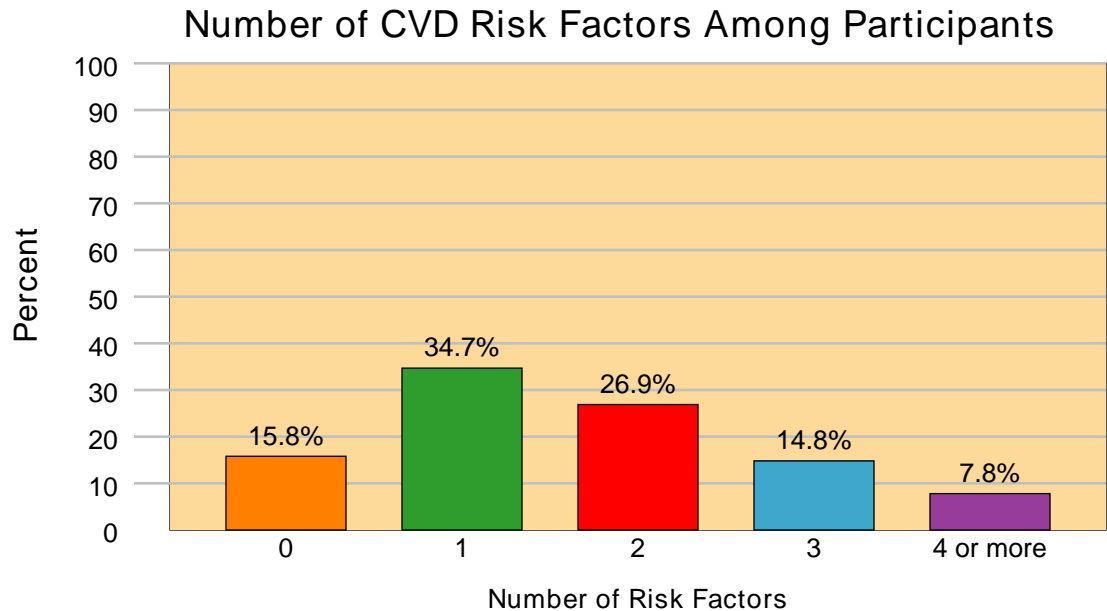


Risk factors based on ACSM Guidelines<sup>3</sup>

# Risk Factor Analysis

## Cardiovascular Disease Continued

Cardiovascular disease (CVD), primarily heart disease and stroke, cause more deaths in Americans of both genders and all racial and ethnic groups than any other disease.<sup>1</sup> It is also one of the leading causes of disability in the United States. CVD costs an estimated \$300 billion annually as measured in health care expenditures, medications, and lost productivity due to disability and death.<sup>2</sup> University of Alaska can drastically reduce health care spending, reduce employee absenteeism, and increase daily productivity through early detection and prevention of CVD.



### Recommended Interventions:

1. Offer reliable resources, such as access to dietitians, literature, and websites.
2. If your company has a cafeteria, offer heart-healthy menu selections.
3. Offer healthy choices in your company's vending machines.
4. Support behavior change through targeted intervention to highest risk individuals.
5. Offer physical activity programs at the workplace.
6. Encourage regular physician visits for physical exams and proper screenings.

### Resources:

American Heart Association  
National Institutes of Health (NIH)  
Centers for Disease Control and Prevention (CDC)

# Risk Factor Analysis

## Cholesterol

535 participants, making up 19.4% of University of Alaska's surveyed population, reported elevated cholesterol levels (200 mg/DL or above). Of the U.S. population over the age of 20, 105.2 million have elevated cholesterol levels.<sup>1</sup> High cholesterol levels are a major risk factor for developing heart disease. In 2006, heart disease alone accounted for nearly \$394 billion in medical expenses and lost productivity.<sup>2</sup> Each year, over one million Americans have heart attacks and one-half of these occurrences are fatal.<sup>3</sup> Making lifestyle changes can often control cholesterol levels. High-fat diets, obesity, lack of physical activity, and smoking are all major contributors to high cholesterol levels. Empowering your members to make needed lifestyle changes to lower their cholesterol will reduce health care costs.

Cholesterol Risk Factor	Percent At-risk	Database Average
Total Cholesterol of 200 to 239	16.4%	21.0%
Total Cholesterol of 240 or greater	3.0%	5.5%
Cardiovascular Exercise less than 4 times per week	62.8%	72.7%
Consume more than 4 fat servings per day	3.4%	3.1%

High cholesterol is a risk factor for the following:

- Heart disease
- Kidney disease
- Stroke

Recommended Interventions:

1. Offer reliable resources, such as access to dietitians, literature, and websites.
2. If your company has a cafeteria, offer heart-healthy menu selections.
3. Offer healthy choices in your company's vending machines.
4. Support behavior change through targeted intervention to highest risk individuals.
5. Offer physical activity programs at the workplace.

Resources:

National Heart, Lung, and Blood Institute  
U.S. Department of Health and Human Services  
American Heart Association  
U.S. Food and Drug Administration

# Risk Factor Analysis

## Depression

667 participants, or 24.2%, of the University of Alaska participants reported at least one severe symptom of depression or two moderate symptoms of depression. Major depressive disorder is the leading cause of disability in the U.S. for ages 15-44.<sup>1</sup> In any given 1-year period, 9.5 percent of the population, or about 20.9 million American adults, suffer from a depressive illness.<sup>2</sup> Depression is a serious medical condition that is often undiagnosed and untreated. Left untreated, depression is as costly as heart disease, which costs nearly \$431.8 billion.<sup>3, 4</sup> The U.S. economy spends over \$43.7 billion in absenteeism (over 200 million days lost from work each year), lost productivity, and direct treatment costs related to depression.<sup>4</sup>

Depression Symptom	Percent At-risk	Database Average
Feelings of hopelessness or guilt	7.3%	8.2%
Loss of appetite, weight gain/loss	10.6%	13.9%
Decreased energy/fatigue	21.1%	24.2%
Persistent sadness	8.5%	8.6%
Insomnia/oversleeping	16.1%	17.3%
Difficulty concentrating/making decisions	11.5%	11.7%
Lack of interest in activities you once enjoyed	10.7%	12.3%
Persistent or troublesome anxiety	10.6%	11.2%

### Recommended Interventions:

1. Discuss services provided by your Employee Assistance Program.
2. Provide literature and education on the common signs of depression.
3. Provide confidential resources for treatment options.
4. Provide support groups.
5. Encourage regular physician visits for physical exams and proper screenings.
6. Support behavior change through targeted intervention to highest risk individuals.

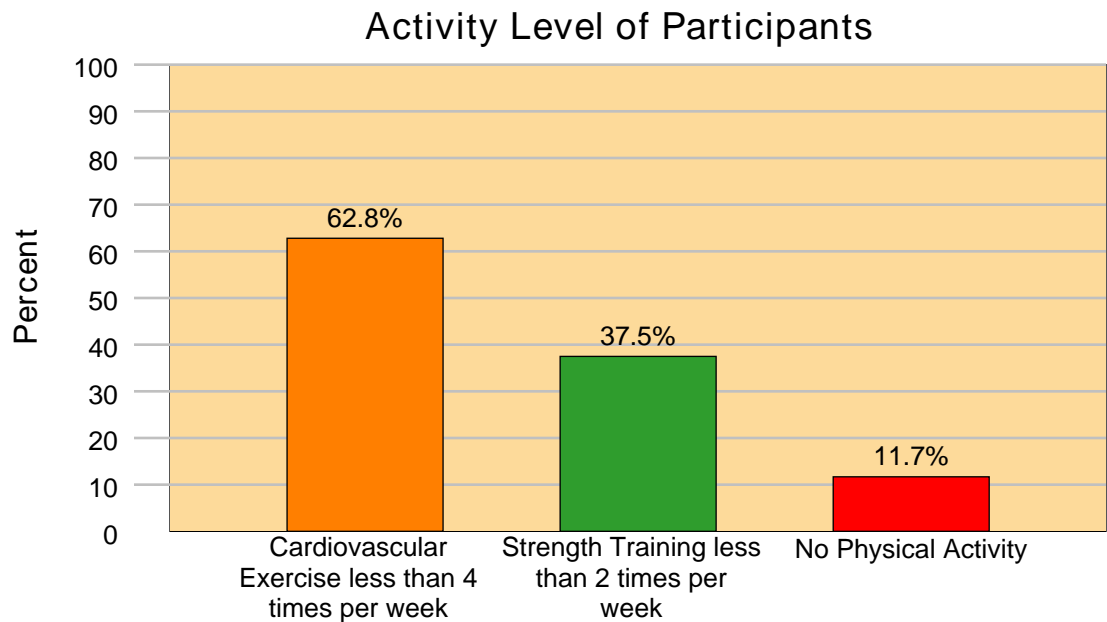
### Resources:

National Mental Health Association  
American Psychological Association  
Depression and Bipolar Support Alliance  
National Alliance for the Mentally Ill

# Risk Factor Analysis

## Physical Activity

1933 participants, representing 70.2% of University of Alaska's total participants, reported less than four cardiovascular exercise sessions per week or less than two strength training sessions per week. Given the numerous health benefits of regular physical activity, the hazards of being physically inactive are clear and costly. Physical inactivity is a major cause of unnecessary illness and premature death. A physically active person exercises on most or all days of the week at moderate to high intensities. It is estimated that physical inactivity costs the United States \$24 billion annually, which is 2.4% of U.S. health care expenditures.<sup>1</sup>



### Regular Physical Activity:

- Reduces the risk of heart disease, diabetes, cancer, and stroke
- Reduces blood pressure
- Helps control weight
- Reduces the occurrence of depression
- Increases a person's ability to perform her/his daily activities

### Recommended Interventions:

1. Set up corporate discounts with local fitness facilities.
2. Start a walking club.
3. Offer physical activity programs at the workplace.
4. Support behavior change through targeted intervention to highest risk individuals.
5. Offer awareness material via self-help books, videos, and audio cassettes.
6. Provide incentives for participating in regular physical activity.

### Resources:

American College of Sports Medicine  
American Council on Exercise  
American Heart Association

# Risk Factor Analysis

## Glucose

116 University of Alaska participants reported having been diagnosed with diabetes. Type 2 diabetes affects individuals of all ages, but it is most common in people over age 40 who are more likely to be overweight and to have high blood pressure and high cholesterol.<sup>1,2</sup> 1086 participants are at increased risk for developing diabetes, or are considered prediabetic. Prediabetes is a classification of people who have glucose levels that are higher than normal, but not high enough to be diagnosed with diabetes, or who have a combination of other risk factors listed below. According to the American Diabetes Association, diabetes alone represents 11% of the US health care expenditure.<sup>3</sup> Diabetes also accounts for 88 million disability days and 176,000 cases of permanent disability were caused by diabetes, at a cost of \$7.5 billion.<sup>3</sup> Lost productivity attributed to diabetes resulting from lost workdays, permanent disability, and premature mortality is estimated at \$40 billion.<sup>4</sup>

Glucose Risk Factor	Percent At-risk	Database Average
Diabetes Type 1	0.7%	0.7%
Receiving Treatment	0.7%	0.6%
Diabetes Type 2	3.6%	2.8%
Receiving Treatment	2.9%	2.5%
At-risk For Prediabetes	39.5%	44.8%
At-risk For Diabetes	0.3%	0.8%

### Diabetes complications include:

- Kidney disease
- Renal disease
- Vision impairment
- Cardiovascular disease
- Stroke
- High blood pressure

### Prediabetes risk factors include:

- Obesity
- Sedentary lifestyle
- Family history of diabetes
- Ethnicity
- Age
- Birth of a baby weighing nine or more pounds

### Recommended Interventions:

1. Support behavior change through targeted intervention to highest risk individuals.
2. Provide awareness material via self-help books, videos, and audio cassettes.
3. Offer physical activity programs at the workplace.
4. Recommend annual exams and screenings.
5. Provide incentives for participating in regular physical activity and diet programs.
6. Offer diabetes classes at the workplace.

### Resources:

American Diabetes Association  
Joslin Diabetes Center  
American Dietetic Association  
National Institute of Diabetes & Digestive & Kidney Diseases

# Risk Factor Analysis

## Nutrition

2564 University of Alaska participants, or 93.2%, do not meet all of the national recommendations for the major food groups listed below. Convenience plays a major role in the nutrition habits of the average adult. The typical American diet is high in fat, calories, and sugar. According to the Centers for Disease Control and Prevention (CDC), an estimated 66% of adults are overweight or obese.<sup>1</sup> Poor nutrition raises an individual's risk for many chronic diseases. For example, one-third of all cancers are attributable to poor diet, physical inactivity, and being overweight.<sup>2</sup>

Poor Nutrition Habits	Percent At-risk	Database Average
< 5 fruits and vegetables per day	74.1%	80.6%
< 6 servings of fiber per day	36.4%	13.7%
> 4 servings of fat per day	3.4%	3.1%
< 3 servings of dairy per day	68.3%	63.1%

Poor nutrition is a risk factor for the following:

- Cancer
- Cardiovascular disease
- Diabetes
- High blood pressure
- High cholesterol
- Osteoporosis
- Obesity

Recommended Interventions:

1. Offer reliable resources, such as access to dietitians, literature, and websites.
2. If your company has a cafeteria, offer heart-healthy menu selections.
3. Offer healthy choices in your company's vending machines.
4. Take advantage of national observances to promote heart-healthy activities.
5. Support behavior change through targeted intervention to highest risk individuals.
6. Offer the help of a dietician or provide inexpensive computer software to help analyze individual dietary needs.

Resources:

American Dietetic Association  
U.S. Food and Drug Administration  
U.S. Department of Agriculture  
Local dietitians

# Risk Factor Analysis

## Stress

1711 participants, representing 62.2% of University of Alaska’s surveyed population reported experiencing at least one major stress event or two moderate stress events in the past year. Stress is found in all aspects of our lives, including work and family. High levels of stress have a major impact on employee health, morale, and productivity. Stress costs American industries more than \$300 billion annually in terms of absenteeism, productivity, and worker’s compensation.<sup>1</sup> Due to fast-paced work environments, it is no surprise that 43% of all adults suffer adverse health effects from stress.<sup>2</sup>

Stress Risk Factor	Percent At-risk	Database Average
Problem with stress	35.2%	39.1%
Stress affects health	34.2%	36.4%
Problems with a friend/co-worker/supervisor	17.4%	13.8%
Death of a loved one	13.1%	15.4%
Depression	11.9%	13.2%
Divorce/separation	4.0%	4.3%
Finances	16.4%	20.7%
Job loss/fear of job loss	9.3%	9.9%
Job stress	36.7%	38.9%
Moving/relocation	11.4%	10.5%
Violence	1.0%	1.4%
Family/relationships	17.5%	17.9%
Your health	14.4%	13.1%
Doesn't use stress reducing techniques	64.6%	67.0%

### Recommended Interventions:

1. Offer physical activity programs and other classes that promote stress reduction.
2. Support behavior change through targeted intervention to highest risk individuals.
3. Discuss services provided by your Employee Assistance Program.
4. Provide literature on reducing stress.
5. Offer support groups.
6. Encourage participants to take vacation days.

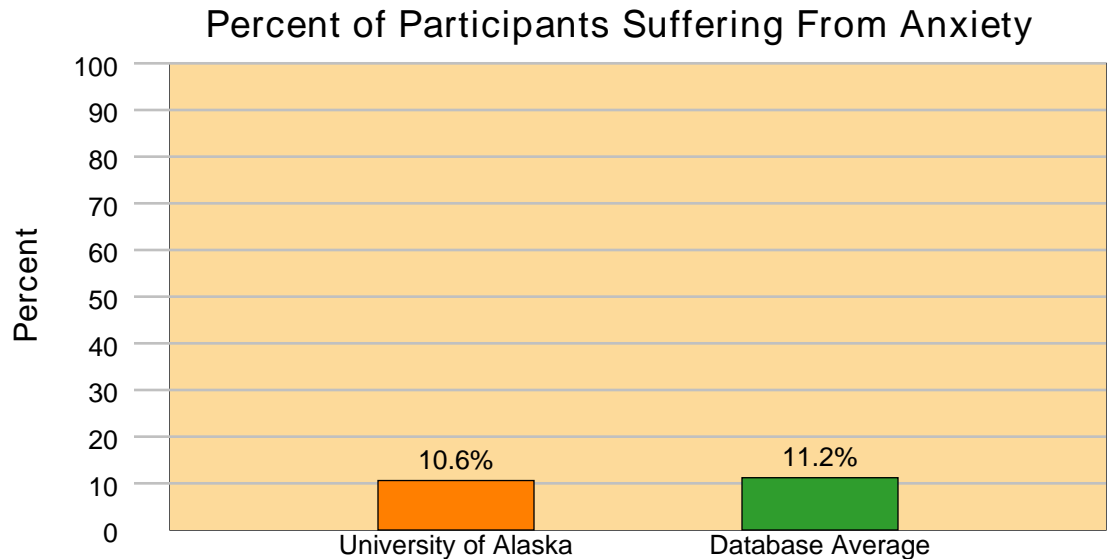
### Resources:

The National Institute for Occupational Safety and Health  
American Heart Association  
American Psychological Association

# Risk Factor Analysis

## Anxiety

291 University of Alaska participants reported experiencing persistent or troublesome anxiety in the past year. According to the Anxiety Disorders Association of America, people with an anxiety disorder are three to five times more likely to go to the doctor and six times more likely to be hospitalized for psychiatric disorders than those without an anxiety disorder.<sup>1</sup> Anxiety disorders cost the U.S. more than \$42 billion a year.<sup>1</sup> The National Institutes of Mental Health reports that four million Americans have Generalized Anxiety Disorder.<sup>1</sup>



### Recommended Interventions:

1. Support behavior change through targeted intervention to highest risk individuals.
2. Offer an Employee Assistance Program.
3. Provide awareness material via self-help books, videos, and audio cassettes.

### Resources:

Anxiety Disorders Association of America  
National Institute of Mental Health

# Risk Factor Analysis

## Tobacco Use

255 participants, or 9.3% of the University of Alaska surveyed population, have been identified as high risk for tobacco-related diseases due to current tobacco use or tobacco use within the past year. The adverse health effects from cigarette smoking account for an estimated 438,000 deaths, or nearly 1 of every 5 deaths, each year in the United States.<sup>1,2,3</sup> The Centers for Disease Control and Prevention (CDC) reports that smoking causes about 90% of lung cancer deaths in women and almost 80% of lung cancer deaths in men.<sup>4</sup> Smokers miss more days of work due to illness and cost \$92 billion in productivity losses annually.<sup>5,1</sup>

Tobacco Risk Factor	Percent At-risk	Database Average
Participants who use Cigarettes	4.9%	11.4%
Participants who use Pipe/Cigar	0.5%	0.8%
Participants who use Smokeless Tobacco	0.9%	1.7%
Participants who did not specify type of Tobacco used	0.1%	0.0%
Participants who are ex-Tobacco users for less than 1 year	3.1%	28.9%
Participants who attempted to quit but were unsuccessful	57.6%	60.8%

Smoking is a risk factor for the following:

- High blood pressure
- Cancer
- Heart disease
- Depression
- Psychological stress
- Stroke
- Emphysema
- Chronic bronchitis

Recommended Interventions:

1. Offer smoking cessation classes.
2. Offer stress reduction classes.
3. Offer reimbursement for smoking cessation products.
4. Provide resource list of community-based services.
5. Support behavior change through targeted intervention to highest risk individuals.

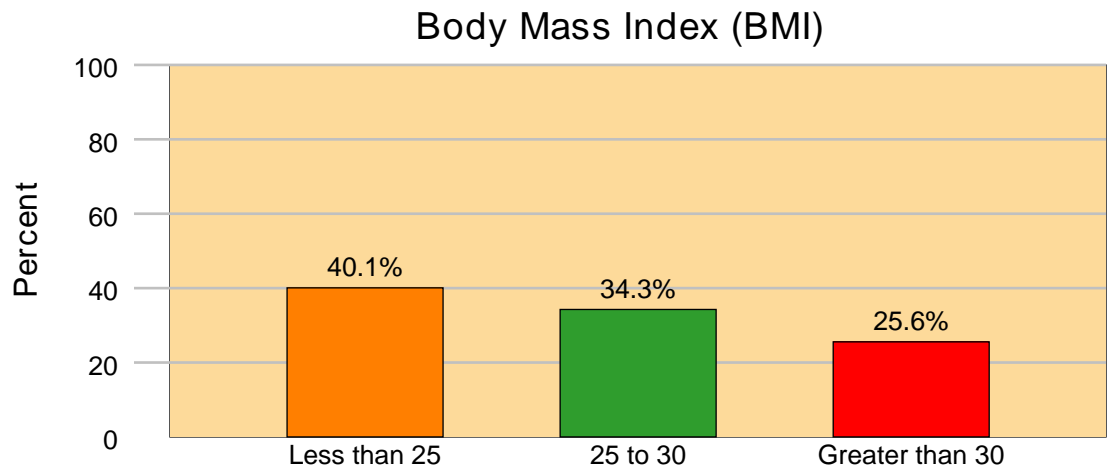
Resources:

American Cancer Society  
American Lung Association  
National Cancer Institute

# Risk Factor Analysis

## Weight

1648 University of Alaska participants, or 59.9%, have a Body Mass Index (BMI) of 25 or greater. BMI uses a mathematical formula based on a person's height and weight. BMI equals weight in kilograms divided by height in meters squared (BMI =  $\text{kg}/\text{m}^2$ ). A BMI of 25 to 30 is classified as overweight. 30 or greater is considered obese. Obesity and excess weight contribute greatly to various chronic diseases and conditions that result in over \$117 billion in direct and indirect medical costs.<sup>1</sup> According to the Centers for Disease Control and Prevention (CDC), an estimated 65% of adults are overweight or obese.<sup>2</sup>



People who are overweight or obese are at greater risk for the following:

- Increased strain on the heart
- High blood pressure
- High cholesterol
- Diabetes
- Stroke
- Certain kinds of cancer

Recommended Interventions:

1. Offer reliable resources, such as access to dietitians, literature, and websites.
2. If your company has a cafeteria, offer heart-healthy menu selections.
3. Offer healthy choices in your company's vending machines.
4. Support behavior change through targeted intervention to highest risk individuals.
5. Provide health information materials.
6. Offer physical activity programs at the workplace.

Resources:

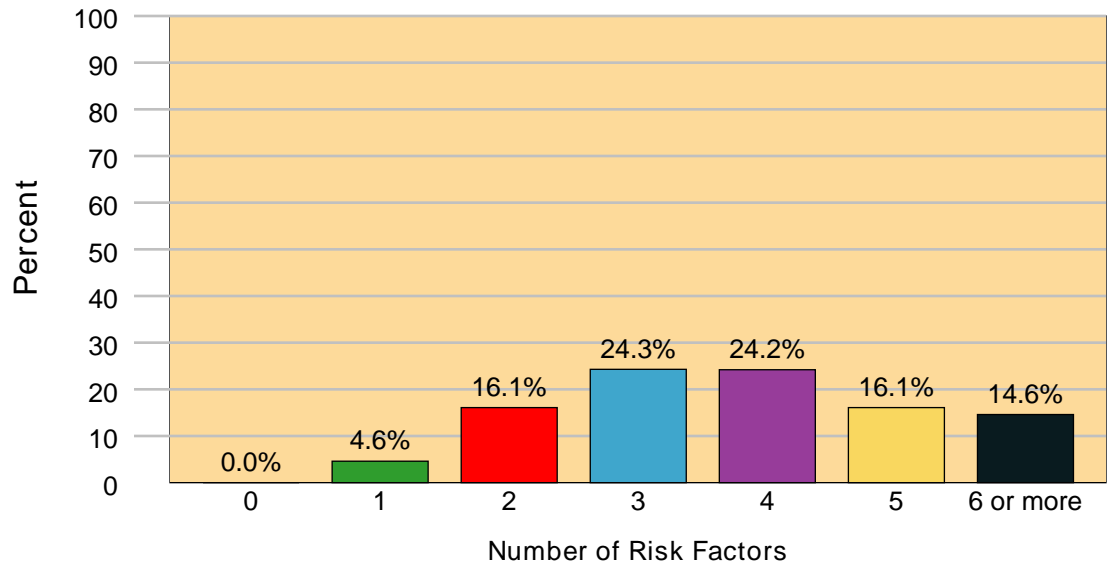
Mayo Clinic  
American Dietetic Association  
American Heart Association  
Centers for Disease Control and Prevention (CDC)

# Risk Factor Analysis

## Multiple Risks

Multiple risk factors, otherwise called co-morbidities, increase an individual's chance of developing chronic disease, increase health care expenditures, and decrease productivity. Individuals with five or more risk factors have increased health care costs of approximately 2.5 times the amount of those with two or fewer risks.<sup>1</sup> Targeting interventions toward employees with co-morbidities has the greatest potential for financial gain.<sup>2</sup>

Participants with Multiple Risk Factors



## Modifiable Risk Factors

- Alcohol Use: > 14 drinks/week for men, >7 drinks/week for women, or binge drinking
- Anxiety: persistent or troublesome anxiety
- High Cholesterol:  $\geq 200$  mg/dL
- Depression: experienced at least one severe symptom or two moderate symptoms
- Diabetes/High Glucose: diagnosed with diabetes or glucose  $\geq 126$  mg/dL
- Hypertension:  $\geq 140/90$  mmHg
- Poor Nutrition: doesn't meet national guidelines for all food groups
- Weight: BMI  $\geq 25$
- Physical Inactivity: < 4 cardiovascular exercise sessions per week or < 2 strength training sessions per week
- Stress: experienced at least one major stress event or two moderate stress events
- Tobacco Use: current tobacco use or tobacco use within the past year

# Recommendations

## Health Behavior Change

Individuals feel differently about changing their personal behavior for health reasons. The questionnaire assesses an individual's stage of readiness for change for various lifestyle factors, to determine where an individual stands on modifying his or her behavior.

The Stages of Change Model, also known as the Transtheoretical Model (TTM), provides a framework for explaining how behavior change occurs. The TTM postulates that behavior change occurs in stages over time and acknowledges that not everyone is ready to immediately adopt the desired behavior.<sup>1</sup> This model is useful in tailoring your wellness interventions by utilizing specific approaches for each stage. The goal is to move an individual along the stages-of-change continuum toward permanent change.

The TTM continuum categorizes people into five different stages: pre-contemplation, contemplation, preparation, action or maintenance.

The TTM also accounts for the fact that behavior change is a process in which individuals are at various stages of readiness to change and can enter and exit at any point. Some people may repeat a stage several times. These stages are defined in the following chart:

### Stages of Readiness to Change

Stage	Definition
Pre-contemplation	Individual does not think he/she has a need for change
Contemplation	Individual has plans to take action towards change within the next 6 months.
Preparation	Individual intends to change within the next month
Action	Individual has realized the importance of change and has practiced the new behavior for less than 6 months.
Maintenance	Individual has practiced the new behavior for 6 months or more.

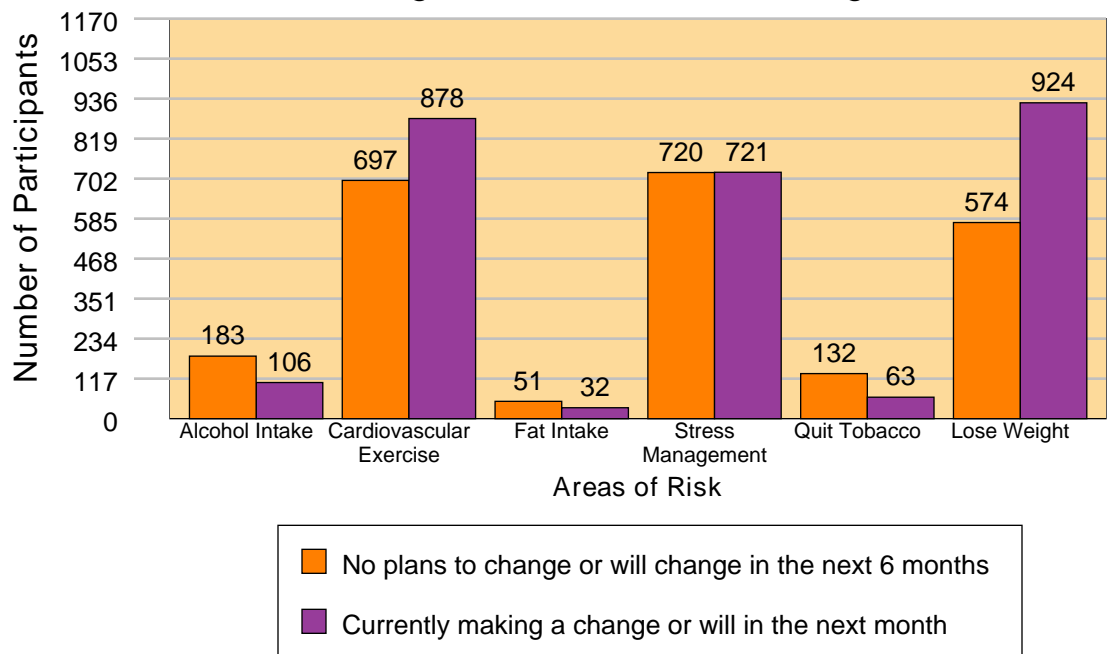
Knowing where your population stands along the continuum of change for each risk factor can improve the effectiveness of interventions designed to reduce behavior and lifestyle-related risks. High-risk individuals must receive the appropriate message in the right frequency to respond positively to interventions. Education can be arranged to reach those who have yet to realize the importance of change or have no desire to change. Targeted interventions can be planned to help move individuals through the stages of change until the desired behavior is achieved and risks are reduced.

# Recommendations

## Health Behavior Change Continued

The following chart summarizes the Stages of Readiness to Change for University of Alaska. The stages have been grouped into two categories. Precontemplators and contemplators are labeled as “No plans to change or will change in the next six months.” Those people in the preparation, action, and maintenance stages are grouped as “Currently making a change or will in the next month.” Programs should be created for each risk that take into consideration the willingness of the population to make changes to reduce their risk. Health behavior information should be planned so that those in the stages of precontemplation and contemplation are made aware of the importance for needed lifestyle changes. Those in the preparation, action, and maintenance stages have already realized the importance of change and are in need of support, coaching, and encouragement to continue the changes they have made or are working to make.

### Stage of Readiness to Change



Note: This data is presented for the participants who report the risk factor only. Those who do not exhibit the risk or chose not to answer the Lifestyle Choices questions on the questionnaire are not included.

# Risk Factor Summary

## University of Alaska Intervention Opportunites

The Intervention Opportunity Index (IOI) is a calculation developed to rank an organization's risk factors based on the probability that risk reduction intervention will have an impact on excess health care costs.

The IOI is an index of potential financial impact for investment in intervention targets. The IOI is derived from the following factors present in University of Alaska's population:

- Excess health care spending attributable to the risk factor
- Prevalence of the risk factor in the target population
- Stage of readiness for change of each individual with the risk factor\*

The IOI is the excess health care cost for each listed risk factor in your organization's population multiplied by a weighting factor for stage of readiness to change for each individual found to have the risk factor. The product of this calculation is then summed for all such individuals with the risk factor. Therefore, the IOI ranks the risk factors in terms of the organization's likely impact in modifying these excess cost factors using risk reduction interventions. The following table lists the Intervention Targets in rank order of importance for University of Alaska.

Intervention Target	Intervention Opportunity Index
Stress	0.613
Depression	0.391
Weight	0.358
Physical Inactivity	0.026
Glucose	0.017
Tobacco	0.016
High Blood Pressure	0.002
High Cholesterol	0

According to the IOI, the top three intervention targets for University of Alaska are:

1. Stress
2. Depression
3. Weight

\*When the intervention target is not staged per Transtheoretical Model, the stage of readiness to change is considered neutral.

# Summary and Conclusions

## Overall Health Status

50% of the participants scored an OWS above 80, indicating a higher level of health and well-being. The average OWS of the University of Alaska population was 79.0534.

50% of the participants have a score below 80. These 1364 individuals have an elevated risk for one or more risk factors and have a higher risk of developing a chronic illness. The three most prevalent health risk factors for the University of Alaska population are:

1. Nutrition
2. Physical Inactivity
3. Stress

621 of these at-risk individuals had three or more CVD risk factors. Individuals with multiple CVD risks contribute over three times more to health care expenditures than persons who are risk free.<sup>1</sup> An intervention program targeting individuals with CVD risk factors will help avoid much of these costs.

## Economic Impact of Risk Factors

Excess health care spending due to elevated risks for the University of Alaska's 2752 participants is \$2,645,376. The top three most expensive health risks at University of Alaska are:

1. Stress
2. Depression
3. Overweight

## Intervention Opportunity Index

The Intervention Opportunity Index (IOI) is a calculation developed to rank an organization's risk factors based on the probability that risk-reduction intervention will have an impact on excess health care costs. The top three risk factors based on the IOI for University of Alaska Health Monitor™ participants are:

1. Stress - 0.613
2. Depression - 0.391
3. Weight - 0.358

Premera congratulates University of Alaska for taking this important step toward improving your population's health and working to control health care costs. Please contact your Premera representative to discuss any questions you may have concerning this report.

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